a stator wound in parallel by phases and polarities and configured of n multi-phases, each of the winding coils of the stator which are not connected with one another is connected to each of n full H-bridges, n full H-bridges are connected to a DC power supply in parallel;

a rotor having a predetermined number of polarities, which is required to concentrate magnetic flux on excitation area;

a commutation encoder including sensing regions and nonsensing regions, the commutation encoder being externally set to one side of the shaft of the rotor; and

two photo sensors set to each phase, the two photo sensors being connected to a half H-bridge of each phase, to switch the half H-bridge on and off, wherein the width of each of the sensing regions of the commutator encoder is determined to allow a phases among n phases to be excited constantly, the corresponding photo sensors recognizing the a phases excited.

Please replace claim 3 with the following:

3. (AMENDED) The motor as claimed in claim 1, wherein the number of phases among the n phases, which will be excited, is determined by the distance between the sensing regions, the distance between the sensing regions being determined through the following expression,

width of sensing regions

= (2π × number of phases to be excited)/(number of polarities of rotor × number of phases of motor) (°),

the number of sensing regions in the commutation encoder being determined through the following expression,

number of sensing regions
=(number of polarities of rotor)/2,
the distance between the photo sensors on a sensor plate being determined by the following expression,
distance between photo sensors
= 2π/(number of polarities of rotor × number of phases of motor) (°),
among the n phases, a phases being excited but b phases not being excited all the time.

Please add the following new claims:

5. (NEW) A constant-power brushless DC motor comprising:
a stator constituted by at least two phases, each of the phases having plurality of windings wound in a distributed, parallel, winding and being independently connected with the each H-bridge circuit of a power switching stage without inter-connection;
a rotor rotatably coupled to said stator and having an even plurality of permanent magnet poles, the motor having said permanent magnet rotor in which the magnetic arrangement is radial to the shaft and integral to said rotor laminations, said rotor laminations having empty spaces between every each magnet in said rotor; and
a commutation encoder externally set to one side of the shaft of said rotor and having sensing regions and nonsensing regions, wherein the number of phases among the at least two phases, which will be excited, is determined by the distance of each sensing region, wherein the distance of said sensing regions being determined by the following formula:

1, 2, 3, ... a excited phases,

1, 2, 3, ... b inexcited phases

$$\frac{2\pi}{\text{the number of poles in the rotor}} \times \frac{(n-b)\,\text{phases}}{\text{the number of phases}} (\text{degrees})$$

the number of said sensing regions is determined by the following formula:

$$\frac{\text{number of poles}}{2} \quad ;$$

a photo sensor coupled operatively with said commutation encoder and constituted so that two photo-transistors are provided with respect to each phase, each of said photo-transistors in the at least two phases being arranged, in turn, one by one at intervals of predetermined shaft angle so as to produce a positive pulse when registered with said sensing of said commutation encoder, and said interval in determined by the following formula:

$$\frac{2\pi}{\text{the number of poles in the rotor}} \times \frac{1}{\text{the number of phases}} (\text{degrees}) \quad ;$$

a electronic commutator constituted such that four power transistors are connected across the windings of each phase of said stator, two of the four power transistors of each phase being connected to one photo-transistor of said photo-sensor so that each phase is provided with two photo-transistors so as to determine the current direction according to the positive pulse of the photo-transistors,

thereby flowing the alternating current of part-square wave through the windings to drive the motor, and an electric power source connected in parallel to each phase of said electronic commutator.

6. (NEW) The motor according to claim 5 wherein said stator has narrow slots adapted to eliminate flux cancel phenomenon between every winding slot and to remove peak current between said excited phase and said inexcited phase.

In accordance with 37 C.F.R. § 1.121(c)(ii), a separate sheet(s) with the rewritten claims marked-up to show the changes made to the previous version of the claims, is filed herewith.

REMARKS

In view of the foregoing amendments and the following remarks, the applicants respectfully submit that the pending claims are not ambiguous under 35 U.S.C. § 112 and are not unpatentable under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.